



## Methanol Testing in Support of MACT Rule for HAPS



Columbia Analytical Services, Inc. offers methanol testing in support of the MACT rule for Hazardous Air Pollutants (HAPs). Columbia Analytical performs the approved NCASI methods for methanol (94.03) and for methanol, acetaldehyde, methylethylketone (MEK) and propionaldehyde (NCASI 99.01). In addition, if the “hard piping” alternative is being used, Columbia Analytical can alert appropriate mill personnel to potential problems if the concentration of concern is known. Below, we’ve provided answers to some of the common questions about HAP testing.

### What are the appropriate Removal Systems?

Steam stripping or “hard-piping” under the surface of a secondary treatment system

### What must be Tested for?

Methanol is the surrogate for HAPs

### What should the Testing Show?

92% removal efficiency of incoming HAPs must be demonstrated

### What is the Frequency of Testing?

#### Steam Stripping

Initial: compliance must be demonstrated, then monitor steam feed rate and condensate feed rates and temperature, or monitor methanol concentration continuously.

#### Hard-Piping

- Initial: test prior to compliance date, inlet & outlet total HAPs, outlet soluble BOD5, MLVSS, aeration HP, temperature, inlet flow.
- Quarterly: total HAPs 1st quarter; methanol 2-4th quarter. Tests performed same as initial tests plus inlet and outlet methanol.
- Daily: total HAPs only if soluble BOD5, MLVSS or aeration HP outside range. Tests performed same as initial testing.

Method	Analytes	Hold Time	Preservative
94.03	Methanol (MRL - 0.5 ppm)	30 days at 4°C	40 mL VOA vials - zero headspace
99.01	Methanol (MRL - 0.5 ppm)	14 days at 4°C	Effluent samples - acid preserved (pH 2-3) Process streams - no preservatives needed
	Acetaldehyde (MRL - 1.0 ppm)		
	MEK (MRL - 1.0 ppm)		
	Propionaldehyde (MRL - 1.0 ppm)		

Sample Type	Analysis	Method / Technique	MRL
<b>Aqueous Effluents</b>	12 Chlorinated Phenolics*	EPA 1653 (4/98 Version)	2.5 - 5.0 (ppb)
	Formaldehyde and Acetylaldehyde (Low Level)	EPA 8315	50 (ppb)
	Sulfur Speciation (4 TRS Compounds)	ASTM D5504-91M GC/SCD Techniques	1 (ppb)
	Turpentine Components	EPA 8270 M	10 (ppb)
	Phenol and Catechol	NCASI Technical Bulletin 734	1 - 5 (ppb)
	Chloroform*	EPA 624	0.001 (ppm)
	Adsorbable Organic Halides (AOX)*	EPA 1650	0.02 (ppm)
	Chemical Oxygen Demand (COD)	EPA 410.1 or EPA 410.2	5 (ppm)
	Methanol	NCASI -DI/MEOH - 94.03	0.5 (ppm)
	Methanol (Low Level)	EPA 5031 / 8015	0.02 (ppm)
<b>Black Liquor</b>	Methanol	NCASI MEMO (1/22/99)	15 - 30 (ppm)
	Formaldehyde and Acetylaldehyde	EPA 8315M	1 (ppm)
	Sulfur Speciation (4 TRS Compounds)	ASTM D5504-91M GC/SCD Techniques	0.1 (ppm)
	Phenol and Catechol	NCASI Technical Bulletin 734	0.5 - 3 (ppm)
	2,3,7,8 TCDD/TCDF (Dioxin/Furans)*	EPA 1613	10 (ppq)
<b>Air Emission Trains</b>	Methanol	EPA 308	
	Formaldehyde and Acetaldehyde	EPA TO-11 or EPA TO-5	
	Sulfur Speciation (4 TRS Components)	ASTM D5504-98 (GC/SCD Techniques)	
	Chloroform	NCASI Tech Bulletin 531 (Duplicate Injections)	
	43 Volatile HAPs	EPA TO-15	
	Dioxins/Furans	EPA Methods 23 and 8290	
	35 Semivolatile HAPs	EPA Methods 0010 and 8270	
	Phenols and Cresols	EPA TO-8	
Hydrochloric Acid	EPA Methods 26 and 300.0		
11 Metals HAP's	EPA Method 29		

Ask for specific quotes for all air emission projects to ensure the analytical approach meets data quality objectives for the project and all sampling supply costs are specified. Many additional analyses, techniques, and approaches are available besides those shown.

Air emission testing for HAPs associated with the cluster rules require a close working relationship between mill technical personnel, air sampling personnel, and the laboratory. Columbia Analytical strives to provide analytical solutions to our clients taking into account process knowledge, monitoring costs (sampling and analysis), project objectives, and potential costs associated with the impact of the data.

\*The routine cluster rule effluent monitoring requires analysis for AOX, 12 chlorinated phenolics, chloroform, and dioxins/furans (2,3,7,8 -TCDD and TCDF). Other test parameters are listed for potential HAPs emissions from various process streams, for mass balance purposes, for potential expected state monitoring requirements, or for specific monitoring state requirements already imposed on an individual facility. Different methods are shown for the same parameter due to either cost differences or detection limit differences required to demonstrate compliance for a particular application.

